Patrick Gray
Principal Security Strategist
Cisco

HACKERS, CRACKERS, BOTS, MALWARE AND PHISHERS, OH MY!

It's a great to be in Sacramento today, but uh, do you know where your data is right now?

It's all about data, your data

- The confidentiality
- The integrity
- The availability

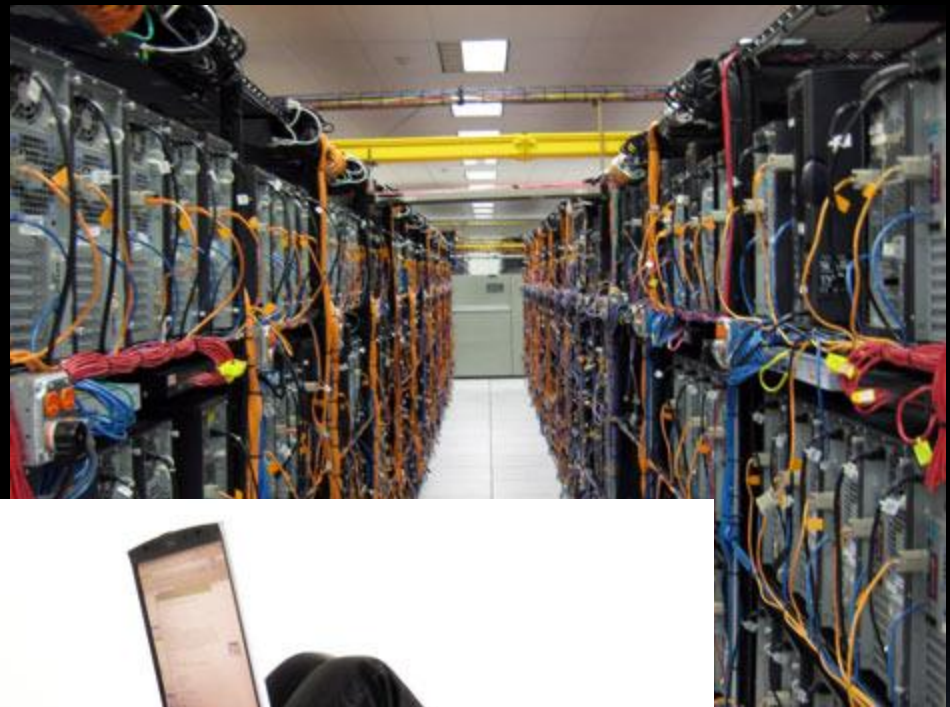It's hard to protect that which we have no idea as to its whereabouts

So, where is our data today?

On any device...

Any place…

Any time…

Mobile Apps

Your apps

CA Resident's Data

CA Employee Data

State Agency Data

Today, it's about mobility…

- In the past few years we shifted our lives to the PC and the Internet

- Now, it's all about being mobile

- A PC in your pocket

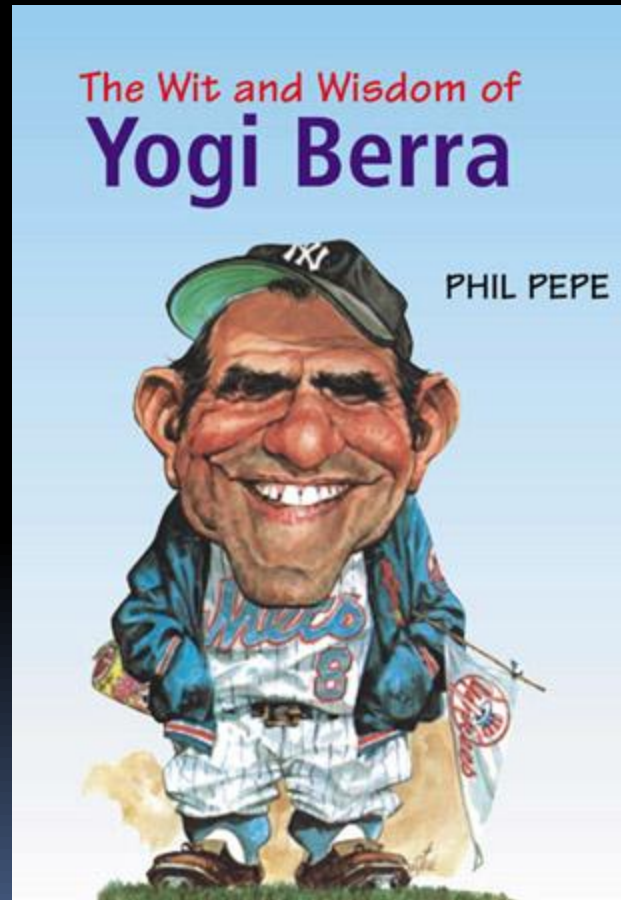- California's mobile work force is growing and expanding globally

Sleeper Agent

Remember when…
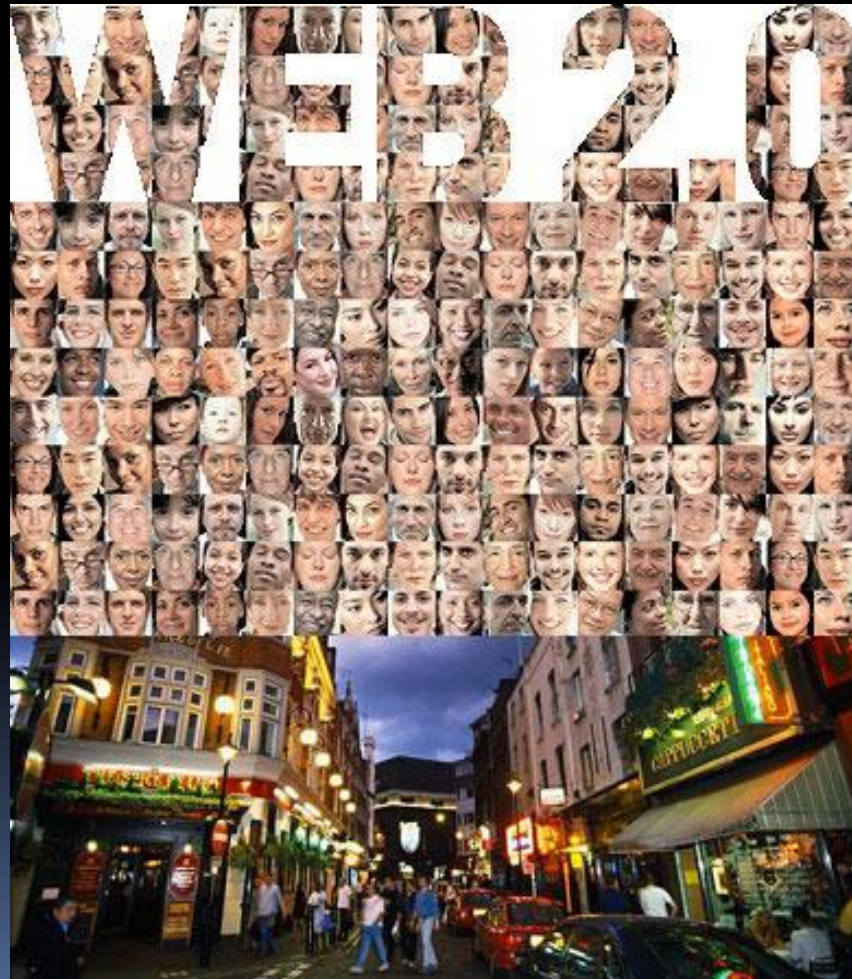
- Security meant having someone who could set a rule on a firewall
- The security officer was at the desk in the lobby
- Browsing was something you did at a Mall
- Podcasting was throwing peas into the wind
- Intrusion prevention was locking your front door
- Identity theft was handing in someone else's homework
- Data loss was forgetting where you put your car keys
- Those days are gone…

"The future ain't what it used to be."

The Wit and Wisdom of
Yogi Berra

PHIL PEPE

What are we going what are we doing?

Cisco Wikis

Cisco Blogs

Cisco on Twitter

CA on Twitter

Explaining Services

Guess who this is…

Yup, Generation Y is on the network – Like it or not, they're here to stay

So, where are we going and what are we doing once we get there?

There is a human element to all of this, an element that is more often than not, overlooked...

It's no longer just close relationships

- State employees, are going places they've never gone before and are touching technology daily
- That which they are touching is touching Agency networks as well

With Web 2.0

- A new breed of malware is evolving

- Google Mashups, RSS feeds, search, all of these can be misused by hackers to distribute malware, attack Web surfers and communicate with botnets

What are the Risks with Web 2.0?

- Social networking is the norm today

- It marks the global trend of seeking friendships or relationships online

- Gradually getting into business life, where networks are used for boosting interactions with customers, banks, brokers and others

- Enhancing communication with colleagues, as well as being a platform for promotion of services and promotions

Risk – it's everywhere

- And no one knows that better than IT security professionals

- Disgruntled employees, fired employees, clueless employees who succumb to social engineering, passwords left on Post-it notes, wide-open instant messaging and increasingly powerful hacker tools in the hands of teenagers, Web Mobs and Organized Crime targeting Social Media sites

Objective?

- The key objective, of course, is to recognize risk, safeguard your reputation and not reveal sensitive or confidential information that may prove harmful to the business

So, what do we have to do?

- Create a Human Firewall

The Human Firewall – an invaluable tool

- A good *human firewall employee* is one who filters good security practices and rejects any others—much like a network firewall only allows authorized traffic and rejects any other

- The only way to build a good human firewall is to raise people's awareness; to teach them good habits, to make them recognize bad practices and change them into good practices

- Your cyber security is only as good as the people who manage and those who use it

So Patrick, why do we really need that Human Firewall?

Because, 'Friend' has become a verb

- Social media users believe there is protection in being part of a community of people they know
- Criminals are happy to prove this notion wrong

My new friends...

46% accepted and gave full access

The "herd" mentality

- The threats and security issues that come with social media aren't usually caused by vulnerabilities in software

- More commonly, these threats originate from individuals who place an unwarranted amount of "transitive trust" in the safety of these communities

Trust?

- Users will trust something or someone because a user they know has also expressed trust in that person or subject

- We trust because we are curious and curiosity...

Curious? This is why! Out of date???

Or a Big Mac!

Or bogus health information

Do you Tweet?

How and why?

- 700 accounts were compromised in two hours

- Victims were clicking on a link in a tweet that lured them with the promise of chatting with a 23-year-old woman on a Webcam

- Uh uh! That's a no no!

They want to send us somewhere else…

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ESET says, "time's up." Get more info here.

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Twitter hit with rogue anti-virus scam
For-profit attack

By **Dan Goodin in San Francisco** • **Get more from this author**

Posted in Security, 2nd June 2009 00:03 GMT

Hitachi IT Operations Analyzer - 30-day free trial

Twitter users over the weekend were the target of a scam that tried to infect them with rogue anti-virus software and other malware, in what is one of the first times the micro-blogging site has been hit by a known for-profit attack, a security researcher said.

The problem started after a flurry of tweets directed users to a website promising "Best Video." The site appeared to offer content from YouTube, but behind the scenes, the site delivered a PDF document designed to infect those using vulnerable versions of Adobe's Reader program. Victims then received an urgent warning that their systems were infected and needed to cleaned using fraudulent security software.

- Hackers demand $10m ransom for Virginia medical data
- eBay driving world's tomb raiders out of business, says prof
- Botnet hijacking reveals 70GB of stolen data
- Sri Lankan Army site 'assasinated' by rebels
- US Congress wants hack teams for self-penetration

Don't go there!

Stay on the path that you know well!

The unknown… DO NOT TOUCH THIS!!!

They play on our fears

Free solution? DO NOT CLICK ON THIS!!!

How about a new picture?

- One emerging attack on social networks, for example, sends messages to a victim's friends that he has updated his profile photo

- When the friends click on a link to the photo, they are then infected, as well, and the cycle continues

Or just plain take advantage of our desire for titillation

Life is tough but it's tougher when you're stupid!

Yesterday

Same old, same old

- It's no secret that most people use the same password over and over again for most of the services they sign up for

- While it's obviously convenient, this becomes a major problem if one of those services is compromised.

- And that looks to be the case with RockYou, the social network app maker

The sounds of silence

- To compound the severity of the security breach, it was found that RockYou are storing all user account data in plain text in their database, exposing all that information to attackers

- RockYou have yet to inform users of the breach, and their blog is eerily silent – but the details of the security breach are going from bad to worse

Head in the sand

- The hacker responsible for the initial breach published a small portion of the dataset he had retrieved and was able to show that not only did he have access to their entire database, but also passwords were stored in the clear

Totally compromised

This begs the question…

- How many people use the same password for each and every social site?
- I would venture that a vast majority of the 32,000,000 users whose data was compromised

© Corbis

Okay to trust but please verify

A healthy dose of skepticism

SKEPTICISM

IF WE CAN DOUBT IT, THEN IT PROBABLY ISN'T TRUE.

Please take the time to change your privacy options but only do so at facebook.com and not at some duck's site!

Lock it down!

So, what's the solution, Patrick?

- The decision to embrace social media technology is a risk-based decision, not a technology-based decision

- It must be made based on a strong business case, supported at the appropriate level for each department or agency, considering its mission space, threats, technical capabilities, and potential benefits

Just say yes, but secure it

- The goal of the IT organization should not be to say "No" to social media websites and block them completely, but to say "Yes, following security guidance," with effective and appropriate information assurance security and privacy controls

A well thought out decision

- The decision to authorize access to social media websites is a business decision, and comes from a risk management process made by the management team with inputs from all players, including the CIO, CISO, Office of General Counsel (OGC), privacy official and the mission owner

Aggressive threats

- The use of social media and the inherent cybersecurity concerns form a complex topic that introduces additional vulnerabilities, targeted by an advanced threat, requiring updated sets of controls

- Your information systems are targeted by persistent, pervasive, aggressive threats – and should not be glossed over

Hey, who's going to tell him he can't?

So, have fun!

Email – an enticing vector

Aunt Marion

PayChoice

Misdirection

- Last Wednesday, a number of PayChoice customers received an e-mail warning them that they needed to download a Web browser plug-in in order to maintain uninterrupted access to the portal for PayChoice's online payroll service

- The supposed plug-in was instead malicious software designed to steal the victim's user names and passwords

- Remember, they want to take you someplace else

So,

- If we understand these burgeoning threats and deploy appropriate security solutions, we can stay a step ahead of the black hats as they target the social networking sites

Gartner Group Quote on Security

- *"Executives must get employees on board and establish a corporate culture that endorses security. Culture is probably the single biggest influence in an enterprise. We need to start thinking about security as a business enabler."*

Richard Mogull, Former Security Analyst
Gartner Group

But what does that mean?

- I am just a State employee and am not an engineer or a technician or a programmer or a geek!

- I'm just sitting at my desk, talking to citizens or other State employees

- How in the world am I threatening the State's network???

2 Reasons…

- You probably do not understand policies, procedures, best practices and standards
- If you do understand them, they are violated because there are no consequences – the policies are not enforced
- Who, me?

There is a human element to all of this, an element that is more often than not, overlooked...

You Must Understand…

- That California is a target
- These hackers are smart, and most have much more time to spend attacking them than a typical system administrator can spend defending against them

Education is Critical

- Few executives grasp the case for investing in safeguards against hackers, worms, and the like
- Education starts at the top and works its way down the food chain throughout the entire State
- Before any California State employee puts their fingers on the keyboard they must understand that it is not ***their*** computer

Survey says…

dark READING
RISKY BUSINESS

DATE: September 28 - October 6, 2008
LIVE EVENT: **SANS Network Security 2008**
LOCATION: Las Vegas, NV
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Study: Routine Misbehavior by End Users Can Lead to Major Data Leaks

Many end users don't understand the risks associated with breaking company security policies, report says

SEPTEMBER 30, 2008 | 5:55 PM

By Tim Wilson
Site Editor, *Dark Reading*

The increasing overlap between users' business lives and their personal lives is wreaking havoc on corporate policies for using company-issued PCs and mobile devices, according to a study published today.

The study, commissioned by Cisco Systems and conducted by market research firm Insight Express, confirms IT managers' suspicions that many users routinely break corporate security policies in order to do personal business at work. A previous Cisco-sponsored study showed similar security risks among employees who do work at home. (See Remote Workers Still Living Dangerously, Cisco Study Says.)

The new study indicates that users frequently download unauthorized data and applications to their work machines for personal use. About 80 percent of employees use their company-issued PCs for personal email, and about half use their work PCs for personal Web research and online banking.

More than half of end users have changed the security settings on their company-issued laptop to view restricted Websites, even though they knew it was against company policy. About 35 percent say it is "none of the company's business" if they have changed the security settings on their computer, the study says.

"There are still a lot of users out there who see their company PC as 'their' machine, and they feel they should be able to do what they want on it," says Cisco security expert Christopher Burke. "There is still a lot of user education that needs to be done."

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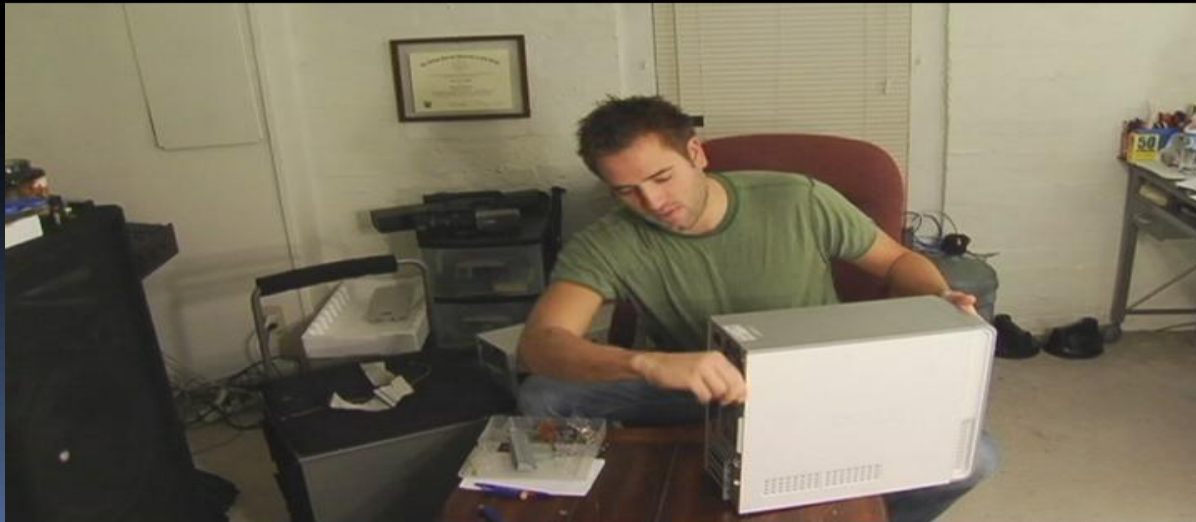
● MicroTCA & AdvancedMC: Delivering on the

Findings

- Users frequently download unauthorized data and applications to their work machines for personal use

- About 80 percent of employees use their State-issued PCs for personal email, and about half use their work PCs for personal Web research and online banking

Routine Behavior

- More than half of end users have changed the security settings on their State-issued computer to view restricted Websites, even though they knew it was against policy

Findings

- About 35 percent say it is "none of their employer's business" if they have changed the security settings on their computer

- There are still a lot of users out there who see their issued PC as 'their' machine, and they feel they should be able to do what they want on it

Findings

- More than half of IT execs say that such unauthorized activity causes as much as 25 percent of the data leakage in their organizations; 16 percent say it causes up to 50 percent

- Many users also share both company devices and sensitive information with others, including colleagues, friends, and family members

Findings

- More than 40 percent of the users said they shared sensitive information because they felt the need to "bounce an idea off of someone."
- About 30 percent said they felt the need to vent and/or didn't see anything wrong with sharing the sensitive information

Pogo was right…

The State of Security Today: active vs. passive

Passive...
What good is security if no one is

And try to understand the _real_ threat!

Get an
Information Security Risk Assessment!

The Seven Deadly Sins of Network Security

1. Not measuring risk
2. Thinking compliance equals security
3. Overlooking the people
4. Too much access for too many
5. Lax patching procedures
6. Lax logging, monitoring
7. Spurning the K.I.S.S.

The Insider is hard to Identify

Collaborate

Do we share?

They certainly do!

HOME
HACKING
PHREAKING
ANARCHY
LINUX
STORE
CAUSES
GUESTBOOK
BOARD
MAILING LIST
NEWS
LINKS

"It's about communication between people, the rest is technology"

ETHICS & HUMOR

Name	Description	Size
2084 - A Phone Odyssy	A clever satire of 1984, 2001 : A Space Odyssy and phreaking	2,740 bytes

TEXT

Name	Description	Size
Phreakers Manual	Excellent phile that explains phreaking	177,558 bytes
Sic-Pbxs	Excellent tut on how to hack PBX's	14,819 bytes
Telecoma	Phreakers Encyclopedia	20,703 bytes
5(m)ess	Nice phile on 5ess switching	12,098 bytes
Hitchhikers guide to the phone system... Phreaking in the nineties	Nice phile that explains a few of the newer switching systems, good for beginners	10,102 bytes
Boxs	All the boxes, what they do, and how to use them	64,476 bytes
PBX Vulnerability Analysis : Finding Holes In Your PBX Before Someone Else Does	Paper that explains exactly what the title says. A good read.	171,330 bytes
Compromising Voice Messaging Systems	Describes the basics of voice mail systems (PDF)	124,429 bytes

MERIDIAN

Name	Description	Size
Meridian Hacking	Introduction to hacking meridian switching	18,623

"*No matter what kind of shop you run, Linux, Mac or Windows, you are exposed to a variety of security threats on a daily basis. You have to deal with potential information spills, security breaches and system compromises, as well as fighting the propensity of humans to do incredibly foolish things.*"

Linda LeBlanc
Former Gunnery Sergeant, U.S. Marine Corps

The opposing team?

- The Hackers
- Disgruntled Insiders
- Clueless employees
- Competitors
- Foreign Governments
- Terror organizations

Terrorists

- There are 154 known Terror Organizations
- They have two things in common:
1. A visceral hatred of the United States and our freedoms
2. They are using the Internet for command, control, communications and recruitment

Did I mention recruitment

The Hackers

The Hacker Threat

The Tools

Remember, this is a global phenomenon, it's not just about Sacramento

Biggest Players in the Global Black Market

- Russia
- China
- France
- Israel
- U.S.

Krews

- HangUp Team
- CNHonker
- Russian Business Network
- Rock Phish
- 76Service
- MAAS
- Hoff is Thirsty

Their Motivation?

Top 8 Perceived Threats

- System penetration
- Sabotage of data
- Theft of proprietary information
- Denial of service
- Viruses and Worms
- Unauthorized insider access
- Laptop theft
- Insider abuse of the Internet

System Penetration

- It is an unfortunate reality that you will suffer a breach of security at some point

- To bypass security, an attacker only has to find one vulnerable system within the entire network

- But to guarantee security, you have to make sure that 100 percent of your systems are invulnerable -- 100 percent of the time

Data Leakage:
How many instances in 2009?

- **526 instances of Data Leakage**
- **39,664,641 individuals affected and counting**
- **Lots of unhappy people**
- **How will you be impacted?**

Public Sector

- Bluegrass Community and Technical College (Danville, KY)
- Naval Hospital Pensacola, FL
- School for the Physical City (New York, NY)
- University Florida
- Akron Children's Hospital (Akron, OH)
- Eastern Kentucky University (Richmond, KY)

Public Sector

- UNC Chapel Hill (Chapel Hill, NC)
- Suffolk Community College (Selden, NY)
- U.S. Army Special Forces (Fort Bragg, NC)
- Pitt County Memorial Hospital (Greenville, NC)
- Virginia Department of Education
- Bullitt County Public Schools (Shepherdsville, KY)
- Roane State Community College (Harriman, TN)

Public Sector

- Chaminade University (Honolulu, HI)
- National Archives and Records Administration (College Park, MD)
- Nebraska Workers' Compensation Court (Omaha, NE)
- University Medical Center (Las Vegas, NV)
- Penn State (University Park, PA)

Public Sector

- Salem Housing and Community Services (Salem, OR)

- Eastern Illinois University (Charleston, IL)

- University of Nebraska (Omaha, NE)

- Wake County Schools (Raleigh, NC)

- Bushland Elementary School (Bushland, TX)

- University Medical Center (Las Vegas, NV)

Public Sector Last 90 Days

Ouch!

Anatomy of an attack

- Last month, Brunswick, Maine-based heating and hardware firm **Downeast Energy & Building Supply** sent a letter notifying at least 850 customers that the company had suffered a data breach

- Downeast sent the notice after discovering that hackers had broken in and stolen more than $200,000 from the company's online bank account

- The hackers gained entrance when a Downeast employee clicked on a hyperlink in a fraudulent email

First inkling to Downeast

- The first indications of fraud came when Downeast's chief financial officer received a phone call from a bank in Texas, asking whether the company had approved a suspicious transfer to a local resident in the amount of $9,800

Utilizing "Money Mules"

- Utilizing a keylogger the hackers used that access to initiate a series of sub-$10,000 money transfers out of the company's account to at least 20 individuals around the United States

Western Union

- The mules are then instructed to withdraw the cash and wire it via Western Union or Moneygram to fraud gangs overseas, typically in Eastern Europe

- It is not uncommon for a single cyber robbery to depend on the help of dozens of money mules

The Duped

- One individual who received the funds from Downeast's account was Kenneth Durastanti, a 24-year-old Ball, LA resident who was recently recruited by a company called Entrust Group Inc

$$$$$$

- Entrust Group told him they had found his resume on Careerbuilder.com, and that Kenneth could make thousands of dollars a month working from home

Bogus or what?

- The company claims to be a 19-year-old brokerage firm located in Rochester, N.Y., but there is no listing for a company by that name in the New York State business register

- Also, the company's Web site is hosted in China, and its domain name -- www.entrust-groupsvc.cn

- We call that a clue

The Internet Advertisement

Too good too be true

- Kenneth's mother warned him it was too good to be true

- Entrust told Kenneth that they wanted his bank account number and ID so they could put a large sum of money in his account

- They wired a $9,589 transfer to his account and he was directed to send a Western Union Moneygram to individuals in the Ukraine

Oh My God! My Mother Was Right About Everything!

A moron gets lucky

- Instead of sending the money to the Ukraine, he accidently sent it to himself

- His stupidity saved him from prosecution

Not good…

- But Patrick! It won't happen to us!

Whether you get hacked depends...

- Do you assume the posture of, "It can't happen here."
- Do you hear, "We haven't heard of any worm outbreaks and all seems quiet. Why upgrade those devices?"
- "We have no budget."
- "We're just hanging out in Sacramento!"
- "They're only going after the U.S. Government and those really big banks."
- Then my question is, "Can you really afford to give up data today?

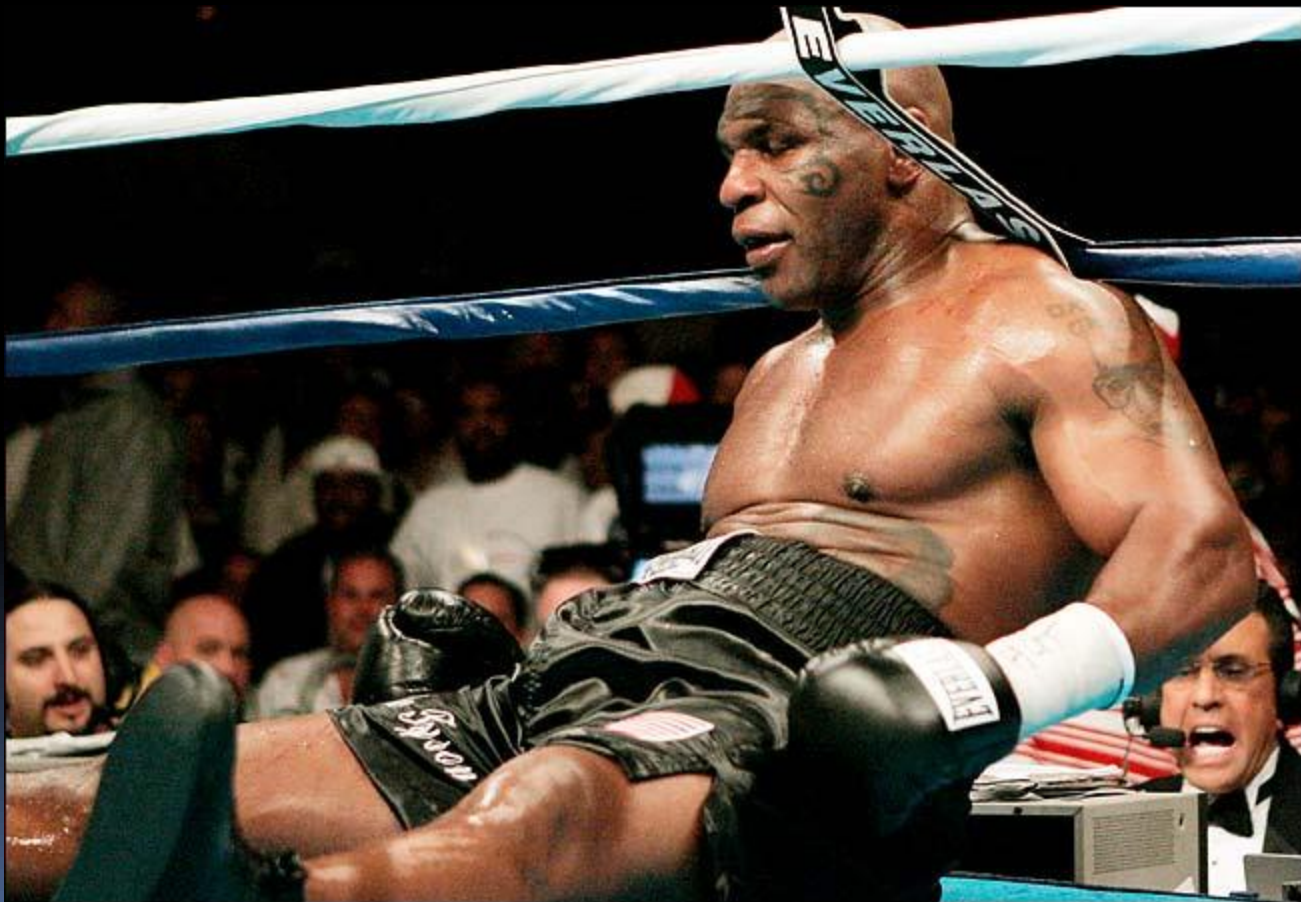# Welcome to the Borderless Network

So,

- Be compliant but don't rest on your laurels
- Be vigilant
- Educate
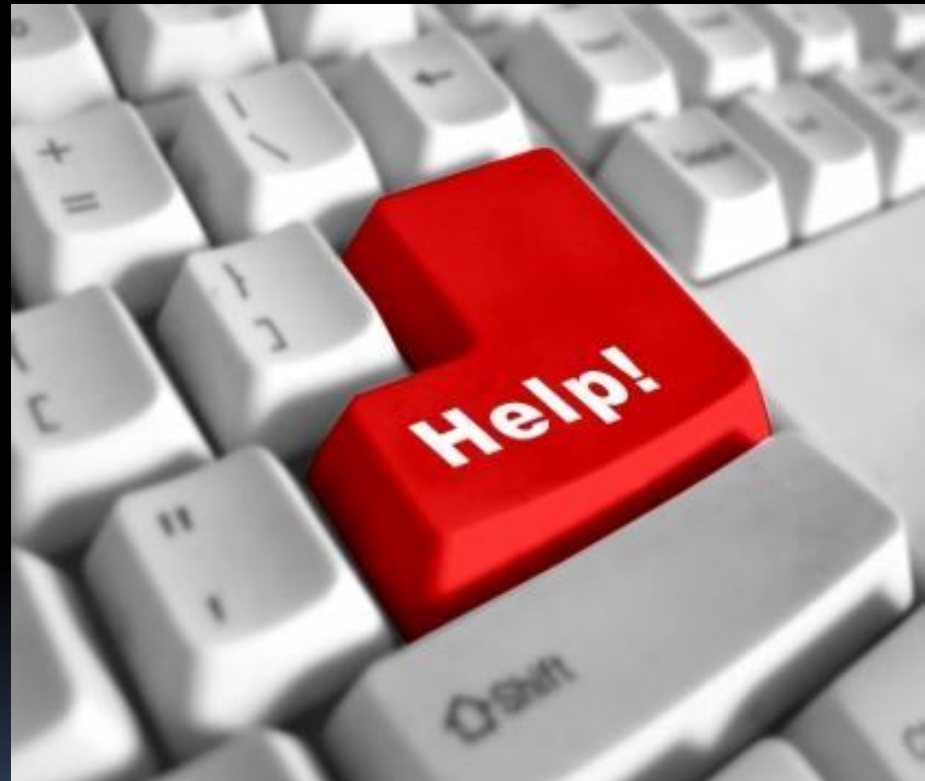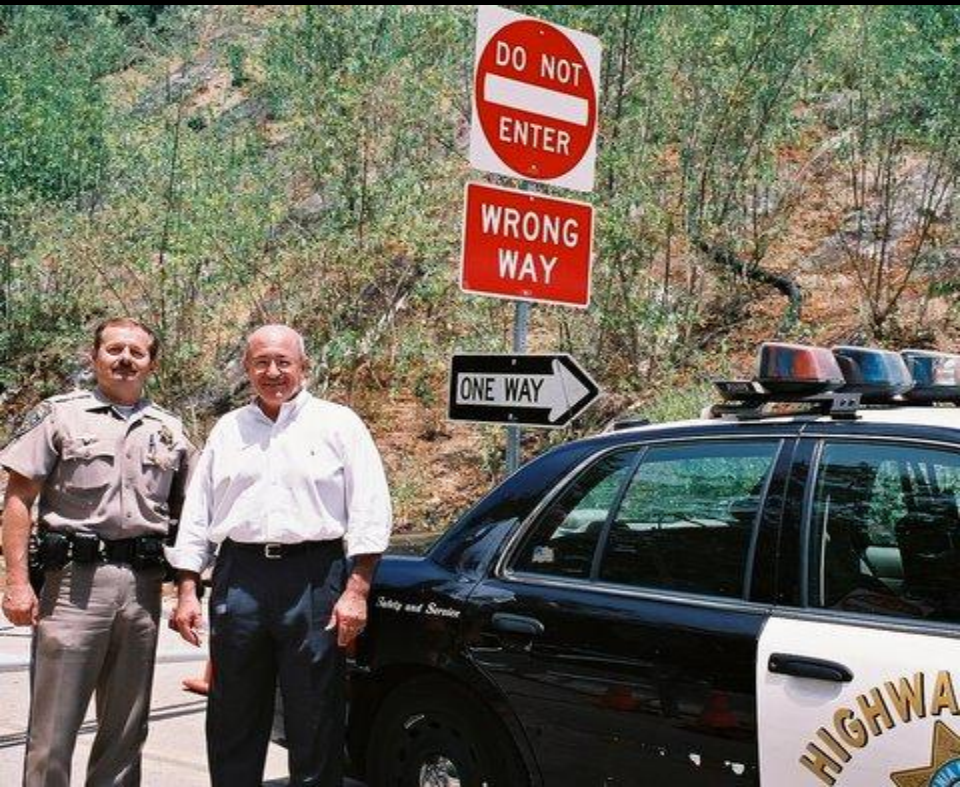- Know that you are a target
- Be ready to respond

How true!

- "Every man has a plan, until he gets hit!"

Know who to call…

And in closing…

Let's not monkey around, protect California's data now!

It's up to you…

- Your policy – let's make sure we honor our pledge to the residents of California

A great plan!

California Information Security Strategic Plan

October 2009

Thanks very much and please, no risky behavior on State PCs!

Public Service Announcement – If you see this man, dial 911 – do not approach alone

From an old U.S. Marine...

For those who have served, thanks!